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TECHNICAL MEMORANDUM
Utah Coal Regulatory Program

October 4, 2010

TO: Internal File

THRU: Ingrid Campbell, Team Lead IC

FROM: James D. Smith, Environmental Scientist JS 5 Oct 2010

RE: Phase II & III Bond Release Fan Portal Area, PacifiCorp, Cottonwood/Wilberg Mine, Permit # C/015/0019, Task ID # 3600

SUMMARY:

PacifiCorp, through Energy West, submitted an application Phase II and III bond release of 7.47 acres of Cottonwood Fan Portal (CFP) disturbance on the east side of Cottonwood Canyon, across the canyon from the Trail Mountain and south of the tube conveyor from the Trail Mountain Mine. The application is dated July 30, 2010 and the Division received it August 3, 2010. The CFP area is in E½ Section 25, T. 17 S., R. 6 E., SLBM (USGS Mahogany Point topographic map). The Corporation of the Presiding Bishop of the Church of Jesus Christ of Latter-day Saints (LDS Church) owns and controls the surface and subsurface.

The Permittee originally planned for a major portal facility in Cottonwood Canyon that would access the westward extension of the main entries of the Wilberg Mine. Starting in 1979 under an exploration permit, the Permittee excavated topsoil and subsoil materials at the Cottonwood Portal area and placed them in stockpiles. The remaining material was stripped to bedrock and pushed downhill to create an embankment to serve as a buffer between the county road and the portal area. The Permittee upgraded the wagon road to the Old Johnson Mine and utilized it to access the Cottonwood Portal site. The Permittee downsized the proposed project from mine access to the single CFP in 1980 and amended it to the Wilberg Mine MRP; however, construction of the Miller Canyon breakout portals in 1981 and re-evaluation of underground conditions resulted in postponement and finally cancellation of the proposed CFP.

The Permittee reseeded the embankment - approximately the lower half of the disturbed area - in 1981: no stockpiled topsoil or subsoil was used. The Permittee regraded, recontoured, and reseeded the terraces of the remaining disturbed area in 1998 and removed the sedimentation basins in 2002. The access road through the Old Johnson Mine was reseeded in 1981. It was

redisturbed for the 1998 work, then regraded, recontoured, and reseeded that same year. The Division approved Phase I bond release for the reclaimed areas on March 16, 2004.

The remaining 1.86 disturbed acres include a soil stockpile, two portals, and the Trail Mountain Mine conveyor tube. Materials from the stockpiles not used in reclamation will be contoured and reseeded in place.

PacifiCorp has posted a $53,252,000.00 surety bond with the Division for the Cottonwood\Wilberg Mine, and is now requesting Phase II and Phase III release of reclamation liability for $109,791.00.

Representatives from Energy West, the Division, OSM, EPA, BLM, USFS, and the LDS Church conducted a bond release inspection at the Fan Portal Area on August 31, 2010.

TECHNICAL ANALYSIS:

GENERAL CONTENTS

PUBLIC NOTICE AND COMMENT

Regulatory References: 30 CFR 778.21; 30 CFR 773.13; R645-300-120; R645-301-117.200.

Analysis:

The Permittee published notification for this bond release application in the weekly Emery County Progress on August 10, 17, 24, and 31. The Division received an affidavit of publication on September 7, 2010. The notification included the Permittee's name, permit number, location of and number of acres affected, the type and amount of the bond and the portion sought to be released, and the date the reclamation work was completed and a brief description of the reclamation and the results. The notification gives the Division's address where written comments, objections, or requests for public hearings and informal conferences on the bond release may be submitted.

The submittal also contains a draft of the letter the Permittee intended to mail to adjoining property owners and local governmental bodies to notify them of PacifiCorp's intention to seek bond release. The mailing address list is included

Findings:

The Permittee's Public Notice information meets the requirements of the Utah Coal Mining Rules.

RECLAMATION PLAN

APPROXIMATE ORIGINAL CONTOUR RESTORATION

Regulatory Reference: 30 CFR Sec. 784.15, 785.16, 817.102, 817.107, 817.133; R645-301-234, -301-412, -301-413, -301-512, -301-531, -301-533, -301-553, -301-536, -301-542, -301-731, -301-732, -301-733, -301-764.

Analysis:

The Permittee cleared the area of soil and vegetation in 1980 in preparation for installation of portals for the Wilberg Mine. This was done under an exploration permit, but the Permittee subsequently added the area to the Wilberg Mine reclamation permit. The Permittee excavated topsoil and subsoil materials and placed them in stockpiles, and stripped the remaining material to bedrock and pushed it downhill to create an embankment to serve as a buffer between the county road and the portal area. The Permittee upgraded the wagon road to the Old Johnson Mine and utilized it to access the Cottonwood site for this work. As the Permittee re-evaluated underground conditions in the Wilberg Mine, the project was downsized from mine access to a single fan portal, and then finally canceled after construction of the Miller Canyon ventilation breakout portals in 1981.

The Permittee reseeded the embankment - approximately the lower half of the disturbed area - in 1981. No stockpiled topsoil or subsoil was spread for this reseeding, and the material in the embankment was not intended to be redisturbed and used for use as backfill during final reclamation. The embankment closely resembles adjacent slopes and has achieved AOC.

The upper portion of the CFP area was mostly bare rock exposed on a series of terraces. The Permittee regraded, recontoured, and reseeded five terraces (identified from bottom to top as 1, 2, 3, 4, and 4a) in 1998 using stockpiled topsoil and subsoil. Due to the steepness of the CFP area, reclamation of the uppermost disturbance, including bypass ditch UD-3, was not feasible. The Hiawatha Coal Seam, exposed during the initial site excavation, was completely covered; layers of carbonaceous material that had been exposed were covered where feasible, but the Permittee tested these materials using ASTM standards and determined them to be non-combustible. Soils could not be placed all the way to the top of the steep - in places vertical - cuts on the upslope side of the terraces because of the height of the cuts and narrow shelves

between the cuts: final gradients for the placed materials are 1.5:1 to 2:1. If soils had been placed all the way to the top of the cuts, the resulting slopes would be too steep to meet the slope stability requirements of the Utah Coal Mining Rules. As a result, the reclaimed slope of the upper half of the Fan Portal Area does not closely match the appearance of adjacent slopes because of the amount of bare rock still exposed, although the Division has determined that it meets the AOC requirement.

The access road through the Old Johnson Mine was reseeded in 1981. It was redisturbed for the 1998 work, then regraded, recontoured, and reseeded that same year. The stockpiled topsoil and subsoil provided the fill material. Because of a request from SHPO, the Permittee left a rough trail up to the sealed Old Johnson portals.

The sedimentation basins were reclaimed in 2002. The Division approved Phase I bond release for the reclaimed areas on March 16, 2004.

The remaining 1.86 disturbed acres include the remainder of the soil stockpile, two portals, and the Trail Mountain Mine conveyor tube and supporting bent. The stockpiled soils not used in reclaiming this final area will be left in place and regraded AOC and reseeded.

Findings:

The Permittee has returned the CFP site to AOC.

BACKFILLING AND GRADING

Regulatory Reference: 30 CFR Sec. 785.15, 817.102, 817.107; R645-301-234, -301-537, -301-552, -301-553, -302-230, -302-231, -302-232, -302-233.

Analysis:

Backfilling and Grading On Steep Slopes

The Permittee cleared the area of soil and vegetation in 1980 in preparation for installation of portals for the Wilberg Mine (this was done under an exploration permit, but the Permittee subsequently added the area to the Wilberg Mine reclamation permit). The Permittee excavated topsoil and subsoil materials and placed them in stockpiles, and stripped the remaining material to bedrock and pushed it downhill to create an embankment to serve as a buffer between the county road and the portal area. The upper portion of the CFP area was a series of terraces, mostly bare rock, exposed by excavation and blasting. The Permittee regraded, recontoured, and

reseeded five of the terraces in 1998 using stockpiled topsoil and subsoil; no spoil, waste materials, debris, woody materials, or abandoned or disabled equipment was used as fill.

A historically significant abandoned mine, the Old Johnson Mine, is surrounded by the CFP site but is not part of the disturbed area. Historic remnants included an old wagon road and two sealed portals. The old wagon road, which was disturbed by the original CFP work, was upgraded and utilized for hauling topsoil during reclamation of the CFP in 1998. The road has been reclaimed up to the Old Johnson Mine site boundary, although a rough trail was left at the request of SHPO. The section of the road within the Old Johnson Mine site is not part of the disturbed area and has not been backfilled or graded, but it was seeded along with the reclaimed areas.

Due to the steepness of the CFP area, reclamation of the uppermost disturbance, including bypass ditch UD-3, was not feasible: soils could not be placed all the way to the top of the steep-to-vertical cuts on the upslope side of the terraces because of the height of the cuts and narrow shelves between the cuts: gradients on the placed fill are 1.5:1 to 2:1. If soils had been placed all the way to the top of the cuts, the resulting slopes would be too steep to meet the slope stability requirements of the Utah Coal Mining Rules.

During the Phase I Bond Release field inspection of the site on April 2, 2002, the Division and Permittee discussed erosion of the hillside at the south end of the UD-3 that was caused by a blowout of UD-3. On August 5, 2002, a helicopter hauled approximately 16 cubic-yards of +6-inch drain rock and 7 cubic-yards of topsoil to repair this gully. Division personnel visited the site on August 8, 2002 and it appeared backfilling and regrading of the gully was satisfactory; however, when the Division again examined the site again during a routine quarterly inspection on September 19, 2002, sheet flow from recent heavy rains had washed off most of the hand-cast seed, but the fill and topsoil were stable with no signs of rills or gullies. This site was again visited for the Phase II and III bond release inspection on August 31, 2010; although there is still a visible scar, the vegetation and woody materials placed by the Permittee have prevented formation of rills and gullies.

Findings:

The Permittee has met the Backfilling and Grading requirements of the Utah Coal Mining Rules.

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 784.14, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-301-512, -301-513, -301-514, -301-515, -301-532, -301-533, -301-542, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-733, -301-742, -301-743, -301-750, -301-751, -301-760, -301-761.

Analysis:

Hydrologic Reclamation Plan

The Permittee has removed all siltation structures: no impoundments, sedimentation ponds, discharge structures or ASCAs remain at the CFP site. No "other treatment facilities" or wells were associated with the CFP. Discharge from or into mine openings will not occur as there were no mine opening developed at the CFP site.

The Permittee performed sedimentation modeling program RUSLE 1.6 to support the 2003 removal of two sedimentation basins at the CFP. This information is detailed in Appendix B in the Hydrology section of Volume 11. The calculated sediment yield from the reclaimed area is on the order of 0.02 tons/year, comparable to the rate calculated for the undisturbed area at the Des Bee Dove Mine that has similar characteristics.

The Permittee included results of the 2007 and 2008 Vegetation Studies by Mt. Nebo Scientific in the Phase II and III Bond Release submittal, and the statistics indicate that the reclaimed areas in the CFP meet or exceed final reclamation standards.

All ditches were initially considered temporary and designed to carry runoff from a 10-yr, 6-hr storm event. The Permittee removed all ditches except UD-3 and DD-4. The Permittee has not maintained UD-3 and DD-4, with the intent that over time both would achieve natural reclamation. The Division approved this self-reclamation strategy at the time of Phase I bond release in 2004.

Ditch UD-3 is located above the disturbed area and was designed to divert runoff from the undisturbed area above the CFP site into a natural drainage south of the CFP. Because of the stony nature of the soil, it is naturally rip-rapped. The upgradient end of this ditch has already been filled by sediment and debris carried in with overland runoff and has become a well-vegetated terrace. There has been only minor flow and minor amounts of sediment accumulation along the remainder of this ditch.

DD-4 traverses the top of the embankment that was revegetated in 1981 and mainly carries overland runoff from the upgradient reclaimed terraces. DD-4 was retained in part to reduce rock-fall from the CFP onto the adjacent road, but with the reclamation and resulting stabilization of the terraces this is no longer an important function. The channel is now heavily vegetated, gradually filling with sediment, and in places is no longer clearly distinguishable from the adjacent reclaimed embankment.

The Permittee carried out several soil surveys at the CFP site: no acid- or toxic-forming materials were identified (Volume 11, Chapter 2, Section 220).

There has been no ground-water monitoring at the CFP site: the Permittee installed several French drains as the CFP was backfilled but never monitored the minor seepage from these drains. Surface–water monitoring is done on Cottonwood Creek above and below the Trail Mountain Mine (Volume 9, Map HM-1), which is on the opposite side of the canyon from the CFP site; quarterly monitoring of Cottonwood Creek at those sites will continue at least for the immediate future.

During an inspection on January 4, 2001, the Division identified a straight drop chute that carries water into the disturbed area with great force. This is in the vicinity of the disturbed area perimeter as it comes west and then north above the Johnson Mine Site and coincides with the Johnson Mine Site Coal Chute. The Permittee agreed to monitor this location frequently and take steps if necessary to prevent gullying, but there have been no problems with this area.

Findings:

Reclamation hydrology meets the requirements of the Coal Mining Rules.

CUMULATIVE HYDROLOGIC IMPACT ASSESSMENT

Regulatory Reference: 30 CFR Sec. 784.14; R645-301-730.

Analysis:

This application does not involve any new disturbance. All reclamation that has been done at this site has been within the permit area as currently delineated in the MRP and within the existing CIA. There is no need to change the PHC determination, water-monitoring plan, or CHIA determination.

Findings:

The Division has reviewed this application for permit change and determined that there is no need for a new or updated CHIA determination.

RECOMMENDATIONS:

The Division should approve this application for Phase II and III bond release at the Cottonwood Fan Portal area.

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